

be employed as a dye; and the oil gives colours of various tints when treated with other oxidizing agents, according to the usual reactions of methyl-aniline. The red-violet from the arsenical melt may, after purification, be converted into the bluer shades by the Hofmann process, when a new generation of gum is again observed.

The specific gravity of the methyl-aniline oil has varied a little in different operations, but keeps within the ranges of 0.95 and 0.97. It is probable that this trifling variation may be ascribed to admixtures of dimethyl-aniline, due in part to the introduction of higher methylated products into the crude gum employed in these experiments.

By operating in a similar manner upon the *ethyl* gums the corresponding ethyl-aniline has been obtained, the boiling-point of which was higher and not so definite (205°–210° C.) as in the case of the oil already described.

By way of conclusion, and as giving further proof towards establishing the identity of the new oils with ethyl- and methyl-aniline respectively, it may be stated that they fail to give Girard's blue when heated with rosolic acid or rosaniline, but take the peculiar course of changing slightly towards violet, and then suddenly becoming decolorized,—reactions almost without parallel in the history of the tinctorial aniline derivatives.

[Specimens of the so-called Hofmann gum, of the ethyl-aniline and methyl-aniline oils, and skeins of silk and cotton dyed with the reddish (or primitive) violet made from the latter, accompanied this communication.—J. S.]

III. "On a new Genus of Amphipod Crustaceans." By RUDOLPH VON WILLEMÖES-SUHM, Ph.D., Naturalist to the 'Challenger' Exploring-Expedition. Communicated by Prof. WYVILLE THOMSON, F.R.S., Director of the Civilian Scientific Staff of the Expedition. Received February 27, 1873.

(Abstract.)

In lat. 35° 47', long. 8° 23', off Cape St. Vincent, the trawl was sent down to a depth of 1090 fathoms on the 28th of January, and brought up, among other very interesting things, a large transparent Amphipod with enormous faceted eyes. The animal, evidently hitherto unknown, will be the type of a new genus, having the following characters:—

THAUMOPS, nov. gen.

Caput oblongum, inflatum, oculis maximis superiorem capitis partem tegentibus. Segmenta thoracica 6, abdominalia 5. Antennarum in feminis par unum, maxillarum par unum, pedum paria duo minima maxillarum locum tenentia. Mandibulæ nullæ. Pedes thoracici 5, abdominales 3 in quoque latere. Appendices caudales 4. Gangliorum pectoralium paria 5, abdominalium 3.

Thaumops pellucida, n. sp.

Corpus longitudine 14 mm., latitudine 21 mm., pellucidum.

An anatomical description of this interesting animal is given, illustrated by two plates; and it is shown that, among the Amphipods known to us, *Phronima* is its nearest relation. But there are so many points in which this genus differs from *Phronima*, that it cannot form a member of the family Phronimidae; and I therefore propose to establish for it a new family, Thaumopidae, belonging to the tribe of *Hyperina*.

The form of the *head* is totally different from that of *Phronima*; the antennæ are not situated near the mouth, but at its front, and the enormous faceted eyes occupy its upper surface. The first two pairs of thoracic appendages are not, as in *Phronima*, ambulatory legs, but maxillipeds, so that only five pairs of legs are ambulatory in *Thaumops*. The *thorax* is composed of six segments—the first of which has, on its underside, the vulva and one pair of maxillipeds; and the second, representing two segments, bears two pairs of appendages, the larger maxilliped and the first pair of ambulatory legs. The *abdomen* consists of five segments, with three pairs of pedes spurii, the caudal appendages being attached to the fourth and fifth segments.

The animal being beautifully transparent, the *nervous system* could be carefully worked out without dissecting it; the position of the nerves going out from the cephalic ganglion, as well as that of the five pairs of thoracic and the three pairs of abdominal ganglia, could be ascertained. The *eyes*, having at their borders very peculiar appendages, were examined, and a description is given of the structure of the large crystalline bodies which are to be seen in them. Organs of hearing and touch have not been discovered.

The *mouth* is covered by a pair of maxillæ and a small labium. There is a recurved œsophageal passage leading into a large cæcal stomach, and an intestinal tube departing from near the end of the œsophagus and running straight to the anus.

The *heart* is an elongated tube extending from the second to the fifth segment, with probably three openings. Three pairs of transparent sac-like gills are attached at the base of the second, third, and fourth pairs of feet.

Genital organs.—The single specimen taken is a female. The ovary, probably composed of two ovaries, has a rose-colour, and the genital papilla is situated at the under part of the first segment; it is covered by two small lamellæ, which in this case did not sustain the eggs, which were found to be attached to the first pair of ambulatory legs. The animal seems to carry them in a manner similar to the pycnogonid *Nymphon*.

Development.—The eggs contained embryos having already the antennæ,

the five pairs of legs, and the abdominal feet; they show that *Thaumops* has to undergo no metamorphosis, and that the young ones leave the eggs with all their appendages well developed.

Mode of life.—It could not be made out whether *T. pellucida* inhabits the deep sea, or whether it is, like *Phronima*, a pelagic animal, having been caught by the trawl only as the latter came up from the depths.

H.M.S. 'Challenger,' Teneriffe,
February 13, 1873.

March 13, 1873.

WILLIAM SPOTTISWOODE, M.A., Treasurer and Vice-President, in the Chair.

The following communications were read:—

I. "Note on Supersaturated Saline Solutions." By CHARLES TOMLINSON, F.R.S. Received February 10, 1873.

In the year 1866, M. Gernez and M. Viollette published each a memoir on supersaturated saline solutions*, in which the same conclusions are arrived at, namely:—(1) that the only nucleus capable of suddenly crystallizing any one of such solutions is a salt of the same kind as that dissolved; and (2) that all bodies, solid, liquid, or aëriiform, which apparently act as nuclei, are really contaminated with a hydrate of the salt that forms the supersaturated solution.

I cannot refrain from expressing my admiration at the unwearied skill and patience with which these two memoirs were prepared. The experiments were repeated by hundreds, and under a large variety of circumstances, so that it seems scarcely possible to entertain any doubt as to the validity of the conclusions arrived at. I had not seen these memoirs until long after the publication of my second paper on this subject†, or I should have hesitated in offering it to the Royal Society without special reference to them. What I did see was a very brief abstract of M. Gernez's memoir in the 'Comptes Rendus,' and to this I refer in my first paper‡, quoting the experiments and the decisive objections of M. Jeannel in opposition to M. Gernez's conclusions.

The experiments of Mr. Liversidge§ are identical in principle with

* Annales Scientifiques de l'École Normale Supérieure, tome 3^e, Année 1866, pp. 167 and 205. I am indebted for this reference to the courtesy of M. l'Abbé Moigno.

† Phil. Trans. 1871, p. 51.

‡ Phil. Trans. 1868, p. 660. The reference to M. Jeannel is in the abstract of this paper contained in the 'Proceedings of the Royal Society,' May 28, 1868, p. 405.

§ Proceedings of the Royal Society, vol. xx, p. 497.